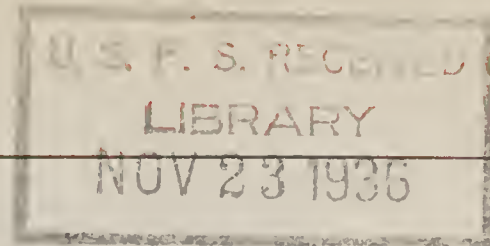


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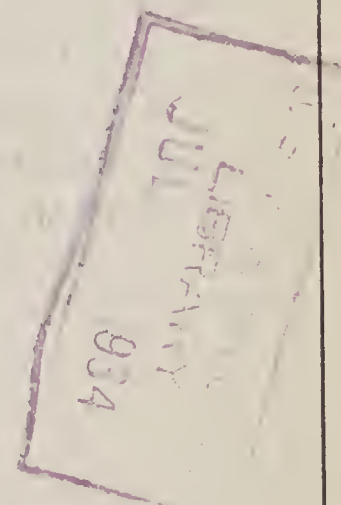




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EXECUTIVE AND PERSONNEL  
**MANAGEMENT**  
ON THE  
NATIONAL FORESTS



A MEDIUM FOR THE EXCHANGE OF IDEAS AND  
EXPERIENCES BY OPERATING EXECUTIVES  
FOR THE BETTERMENT OF THE  
**SERVICE**

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## SERVICE NEEDS IN WILD-LIFE MANAGEMENT

*By* PAUL H. ROBERTS

"Kep" has asked me to state my ideas of some of the things that we need to do in game management. I am simply putting down, with very little attempt at logical order, some of the slants on the matter which have occurred to me and am plagiarizing freely from other sources. "Kep," in his discussion, speaks of game management. Wild-life management seems more descriptive of the job. It is true that in the main we are at present, and have been, concerned with management of game animals first, because of game depletion and the desire to restore game population and improve hunting. For the past few years the Service has had to cope with special cases of overpopulation because of protection without the application of other phases of management. This has, likewise, centered attention upon game. Wild-life management in the future may go well beyond the larger game animals. There are more rabbit hunters, for example, than any other "species." Management by the Forest Service of fur-bearing animals has scarcely been given a good start. To what extent will the Service manage bird species—quail and grouse, for example? Then we cannot overlook the fact that after all there are far more recreationists, including camera hunters, than "shooters" and fishermen, and no doubt the National Forests will have a distinct contribution to make to such recreationists quite apart from the function of the National Parks. The economic values attributable to aesthetic properties of wild life may even compare very favorably with those attributable to hunting. We should determine what these economic values may be. The term "game," therefore, seems to restrict.

It seems (and I may be wrong, because I have not been close to the management job for a few years) that much of our wild-life management has been of the "spot" variety. This is no doubt due to the fact that the Service has had to focus attention on certain areas, first by establishing areas closed to hunting, later by the necessity for protecting some of these closed areas from damage due to overpopulation. It has been difficult to obtain State co-operation to open up closed areas, and also to overcome unfavorable public opinion. This situation may be helped somewhat by the new regulation. On the other hand, the new regulation may encounter considerable opposition, so that one of the big immediate jobs will probably continue to be public education.

It will probably be necessary to focus attention on "sore" spots, but after all wild life of one kind or another is one of the five major resources of forest land, and the problem is one of developing and utilizing wild life on all forest lands. So while we must of necessity concentrate perhaps on the sore spots, we should also begin the work toward full development on other areas. "Kep" says, "Should we not clean up on sore spots first?" It possibly depends on how big the sore spots are. I do not believe that while we are cleaning them up we should be overlooking the job in its entirety. For example, the problem of acquiring needed winter range may not be a sore-spot problem, and yet it may be far more difficult or impossible to acquire essential winter range two to five years hence. The cost may never be less than at present. Do we know our needs

for winter range? Are we making long guesses, or do we have accurate information for this, that, and the other particular locality? What are the chances of getting it now from public domain by purchase or by donation?

“Kep” stresses the things we need to do to improve the technique of handling the game itself. Wild-life management, interrelated as it is with silviculture and range management practices, will doubtless affect present practices to a considerable extent. There is some information to show that game population increases for many years following cutting. It would doubtless be impracticable to allocate sale areas according to the needs of game, but the beneficial results might be obtained to a lesser degree by cultural operations which would be more susceptible to adjustment to specific areas. This may be far beyond the immediate needs of wild-life management. Maybe it is not. The Service is just beginning a big program of land acquisition. There are many who believe that game, during the early processes of rehabilitation, will be one of the principal sources of returns from such lands. Cultural operations may assist greatly in the development of game resources. We should begin now at least to obtain needed information of this sort.

Wild life is the only mobile forest resource. The Service manages the forage resource but not the domestic livestock which use it. In the case of wild life, however, we must manage not only the food resources but the wild life itself. More man power will be required for this kind of management, and it must be obtained either directly or through co-operation. Costs without co-operation would doubtless be prohibited. When the Copeland Report was written, in 1932, a modest estimate of additional costs was made for game management. That was before, this is after the new deal in wild-life management. My guess is that estimates made now would be much greater. How are such costs to be met? The returns from wild-life management should bear some, possibly a large part, of the management costs. The contribution of wild life to community support should be one means of obtaining co-operation and the necessary man power to make management effective. If “Kep’s” beaver ponds, for example, contribute to the community, then the community has a direct responsibility for co-operating in the development and protection of the beaver ponds. One of our problems will be to get this co-operation. In this country we have always shied away from commercial hunting. Doubtless the principal reason is because commercial hunting was a serious source of game depletion. With systematic game management in effect, is there any real reason why regulated commercial shooting, with commensurate charges therefor, should not be practiced?

The wild-life resources cannot be fully developed on areas that are overgrazed by domestic livestock. When a closed area becomes overpopulated and overgrazed by game, steps are taken to relieve the area by opening up to hunting, by trapping, etc. The relationship between use of forage by domestic livestock and by grazing game animals is not a new one to forest officers, and it is still far from solution. As development of the game resources proceeds, the problem will become more acute, and conflicts between game enthusiasts and the grazers will, for a time, probably become sharper. It seems certain that



domestic livestock must give way in some degree to wild life, and the continued overgrazing of domestic livestock will give the game enthusiast more and more argument for curtailment of livestock grazing on the National Forests and replacement by game. To some extent this may be desirable. We may have areas now which should be closed to grazing and utilized only for game, or we may have areas where the livestock grazing should be materially reduced in the near future to provide for game development. It seems to me that in the West this will be one of the major problems which we will have to meet, and that in the near future we will need to make decisions regarding numerous areas.

The Forest Service, with around 160,000,000 acres of existing National Forests, and with a program of acquisition of around 134,000,000 acres, will have the biggest single problem of game management in existence. It will be a splendid and interesting undertaking.



## THE NEW DEAL IN GAME MANAGEMENT

I have headed this the new deal, but as near as I can find out no one will know just what the new deal is going to be until after the Range Management conference next fall. That there is going to be a new deal seems certain, at least everybody thinks so. The only visible evidence so far is Regulation G-20A, and possibly the Act of March 10, 1934, which provides that the Secretary of Agriculture and the Secretary of Commerce are authorized to co-operate "in developing a Nation-wide program of wild-life conservation and rehabilitation."

I suppose all of you have seen the regulation, but just to refresh your memory I am including it here. It provides that: "When the Secretary shall determine upon consideration of data and recommendations of the Forester that the regulation or the prohibition for a specified period of hunting and fishing upon any National Forest or portion thereof is necessary for the accomplishment of the purpose above set forth, he shall designate such National Forest or portion thereof, establish hunting and fishing seasons therefor, fix bag and creel limits, specify the sex of animals to be killed, fix the fees to be paid for permits, designate the authorized official to whom applications for permit shall be made, and describe the terms and conditions under which hunting and fishing shall be conducted with a view of carrying out the purpose of this regulation. Public notice of such designation shall be given by such means as the Forester shall deem adequate for the purpose. Carcasses of animals or of fish taken under permit shall be marked or tagged for identification as directed by the Forester."

That the regulation will increase your opportunities there can be no doubt, but just what the law will do is a mystery. The intent of Congress is evident, and that, I suppose, is what we should bank on. The purpose is as quoted above. Congress wants to promote wild life. The Act is intended to help. It no doubt will. To what extent will depend upon its interpretation. The difficulty with it is that it mixes things up too much. Management of wild life (on an area) is just like management of a factory. No one would expect maximum production

from a factory if a half dozen outside agencies were authorized to help the manager manage. Any up-to-date manager consults experts. If it is such consulting expert service for the use of management that the law provides it will help things out. If it is interpreted as extending authority to various agencies, it could easily mix things up worse than ever instead of straightening them out. I am no doubt unduly pessimistic. The functions of the various agencies can and no doubt will be integrated and so correlated that each will contribute without restricting the managerial authority of the agency responsible for the administration of the land.

To come back to the regulation: It will not give you the complete authority that some of you think you want. You will still have to co-operate with the States. In fact, you could not manage without it. If you had no alienations possibly you could, but the regulation gives you no authority over private land inside the boundary. It seems to me that what the regulation will do is to give you a real basis for co-operation. Before, you co-operated with the State; now, perhaps the State will co-operate with you. At least you can close areas where game needs protection, open areas where there is overgrazing, and regulate the kill where hunting is too heavy. You can do this much more successfully with the help of State organizations than you can without. After the first opposition which one can expect to any change, it should be possible to show the States that it is to their advantage to go along with you. Further, quite a number of men in all parts of the country are beginning to get the management idea, so it is reasonable to expect a change in State attitudes as well as State laws. In any case, the new regulation will enable you to go further in planned management than you have in the past.

You now have on all Forests a good estimate, good enough to begin on, of the number of game animals. These estimates started as sheer guesses some thirty years ago, but have been checked and rechecked so many times that they are now pretty reliable. They should be, as rapidly as possible, segregated by home ranges. That is the biggest thing about the regulation. It enables you to break a Forest up into home ranges. One may be overstocked and the one adjacent understocked. Under an unlimited license system there is nothing to prevent the heaviest hunting on the understocked area.

But understocking and overstocking, as you know, but the public doesn't yet realize, depends not on actual numbers but on numbers in relation to feed. The thing we must have next, then, I suppose, is an estimate of carrying capacities. How much feed is there on a certain area for, say, bear or deer? Robinson has furnished us a palatability table for deer in California, and Rush for elk in the Yellowstone country, but no one has yet published one for bear. What do they eat, anyhow?

Getting the carrying capacity of all our ranges for all species of wild life is a lot bigger job than our past job of estimating for two—cattle and sheep. That has taken us 30 years, and is not yet finished. What can we do about the new estimates that we need right now? Perhaps somebody will develop a quick and easy way to get workable results. For example: Professor King of Minne-



sota, I think it was, has suggested that the linear mileage of "edge types" is a good criterion. Game animals need two or more types. They don't inhabit pure forests or pure prairies to any extent. The game range is proportional to the periphery of openings. Now if someone will just tell us how many deer, and bear, and grouse, etc., to the mile we can get our carrying capacities from existing type maps. Guessing from the data at hand, such as the Adirondacks bulletin, I should say about one deer to the mile. Is that more than 100 per cent off?

Another job that is seemingly necessary now is to estimate the increase, or, better, the allowable kill without depleting the capital stock. These will necessarily be rather crude approximations at first, but will improve as our technique develops. Since animals come back more rapidly than plants, it may be well to be conservative and favor the range. And another thing, possibly the first thing to consider, numerous reports indicate that we now have a lot of sore spots where the feed is already badly depleted. Should we not clean these up first? Some of them are in remote places where it may be difficult to get enough hunters to take the crop without extending bag limits, building auto roads, or resorting to advertising. Anyhow, the soil and forage should be protected by some method or other.

A while ago I mentioned a grazing conference that is planned for next fall. It will discuss many of the problems that you have been concerned with in these studies, and many others also. Particularly will it be concerned with the work necessary to put the regulation into effect and the additional personnel needed. To determine work and personnel, the objectives and policies must be clarified and understood. Are we starting out on an aggressive campaign all along the line, or will we be conservative, picking the most favorable places to begin and gradually work toward full production?

I am inclined somewhat toward the latter course, but not to extremes in that direction. Each Region ought, I should think, get a few good examples under way. Overgrazed areas should at least be taken care of, and there should be examples of good fur-production management. Also a few areas improved especially for tourists. A fully stocked example on a sustained yield basis in an accessible locality would probably yield more in public education than anything else that could be done.

Then there is the social welfare angle, mentioned in the Forester's April 7th letter. How can the game resource be made to contribute to community support? Not through contributing to the meat supply, but through a cash contribution. Can local settlers be used as guards or on range improvement work? Should not a half dozen well-located beaver ponds in good territory furnish the necessary cash income for one subsistence homestead family? How many such families can we provide for if we work our wild-life resource to capacity? The chief difficulty seems to be that we find it almost impossible to adjust our thinking to the view that anything of that kind is going to be necessary over a period of years. We keep wanting to go back to the economic basis of the '20's. Or we think of game as contributing to the pleasure of the new leisure, the

forcibly increased leisure, if you will, of our citizens. It will, but at the same time it must contribute to the welfare of those who have too much leisure and nothing else. The Federal lands should contribute to the greatest need of the people, and this need is the rehabilitation of our basic social unit, the unemployed family.

These rambling observations of a layman will not contribute anything to the solution of your field problems, except possibly in getting you started in thinking about it and figuring and planning on how the problems ought to be met. It is not at all the game management problem of the past and not the game situation we had hoped for in the future. It contains a lot of new elements that are hard to grasp, and factors that will tax our vaunted resourcefulness to the limit. From that point of view it is one of our biggest opportunities, ranking with the new setup in acquisition, or the code provisions for private forestry.—P. K.



## REVIEWS

*American Game Policy*: Adopted by the Seventeenth Annual American Game Conference, December, 1930. Published by the American Game Association.

All of you have access to this publication, and I think most of you have read it, so there really isn't much excuse for me to include it here. Also it is nearly four years old, and many things have happened since it was adopted. Possibly some of its provisions are out of date. On the other hand, we are just embarking on a greatly enlarged program and are in the process of developing policy. What others think about policy should interest us, not that we follow their lead, but that we may use whatever is of value to us, and also that we may know where stand the leaders outside the Service with whom we must co-operate.

In the introduction the Committee emphasizes the idea that the demand for hunting is increasing while game is decreasing, and that if hunting for sport is to continue, game production must be increased. This is accepted as axiomatic, but the difficulty is in deciding where, and how, and by whom. Game is a crop, a product of the land. But it differs from other crops in that the owner of the land who produces it cannot own it. Therefore, landowners generally are not interested in its production. In England the producer of the crop owns it, just as he owns his wheat or potatoes; but in this country our pioneer tradition that wild things belong to whoever takes them, and that hunting is free, is so strong that it is impossible to establish the ownership idea here. Anyhow, there may be a better way. It is possible, under public regulation, to recompense the landowner for the game produced without granting him full ownership rights of control. Ownership would produce more game, but for whom? Six times as many people hunt here as in England, where the game is privately owned.

Yet it is recognized that only the landowner or manager can manage the



game. About the only things that a State department can do are in protection and planting. No one expects to produce other crops by any such limited means. To raise corn, the farmer cannot stop with planting. He must make the environment favorable to the production or growth of corn. This he does through spacing, cultivating, fertilizing, etc. To produce game he likewise must make the environment favorable to the growth of game. This means food, cover, and protection from enemies. In other words, it means doing things to the land that makes it a better place for game to live.

The report also emphasizes the idea that game is a by-product of farming and forestry, and seldom if ever a primary crop. I suppose that that is largely a question of definition, but it seems to me that "by-product" is an unfortunate term that suggests more than is really true. It is true that game is not the principal crop, but is it not also true that where the entire farm is cropped there is practically no game? "Clean farming" produces a negligible by-product. On the other hand, if the farmer leaves fence corners, brush patches, grass and weed patches uncultivated, there will be a place for farm game, but is not the game the base crop of these particular areas? To be sure, the game does use the cultivated land to some extent, and to that extent the game is a by-product. The same thing is true of forest land. If the Forester insists on the highest possible silvical use of each acre, the by-product in game will be negligible. But if he neglects the less productive areas, allowing them to grow up to grass, brush or weeds, the game will increase. On the other hand, if he deliberately creates the type of environment preferred by game, wood production will decrease somewhat and game production will increase a great deal. Why, then, is not game the primary crop on that part of the area particularly modified and adapted to its needs?

The policy, briefly, is to promote game production through giving the landowner a financial incentive for so using his land; through greatly extending public ownership and management; through the systematic training of men for management work; through the co-operation of all interested parties; through experimentation in methods, and through extended facilities for basic fact-finding research.

The program for carrying out this policy consists of seven basic actions. This seven-point program is as follows, briefed only slightly:

1. *Extend public ownership and management* of game lands. Such extensions must often be for forestry, watershed and recreation, as well as for game purposes.

2. Recognize the landowner as the custodian of public game on all other land, protect him from the irresponsible shooter, and compensate him for putting his land into productive condition. Make game management a partnership enterprise to which the landholder, the sportsman and the public each contribute, and from which each derives appropriate rewards.

3. Experiment to determine in each State the merits and demerits of various ways of bringing the three parties into productive relationship with each other.



4. Train men for skillful game administration, management and fact finding. Make game a profession.

5. Find facts on what to do on the land to make game abundant.

6. Recognize the non-shooting protectionist and scientist as sharing with sportsmen and landowners the responsibility for conservation of wild life as a whole.

7. Provide funds. Insist on public funds from general taxation for all betterments serving wild life as a whole. Let sportsmen pay for all betterments serving game alone.

This policy and program provides in a general way for taking care of the main difficulties of game management. Its greatest weakness is that it assumes that public ownership provides a way for management. This is not necessarily so. The managers of public land may find themselves in much the same situation as private owners when it comes to dealing with game. If the public vests the authority over game to one group or official and the physical management of the land to another, nothing much is gained by public ownership. Only the manager of the land can make those necessary changes in type and cover to adapt the environment to game, and he will do it only when he has enough control to insure that his efforts are not wasted.

In addition to the policy and program, the committee's report has an appendix in which management problems are discussed. This discussion covers much the same ground that we have covered this winter, but of course gives more space to farm game and to migratory game. These two classes provide possibly 90 per cent of the shooting, and are the two classes in which we are least interested. Of course, practically all forests have or can produce some game in these groups, and a few forests are well situated for their production.

Most of the space, however, is given over to a discussion of the various ways the States have developed for interesting the farmer in game production. For this the Texas Shooting Preserve Statute is one of the best. This provides for granting the landowner a license to sell or lease shooting on his land. The license is renewable, provided the licensee enforces the law and reports the number of hunters and the kill. The State protects the owner against trespass, provided he does not charge more than \$4 per man day or 25 cents per acre.

The needs in forest and range game management are greater public ownership of land, facts on how to modify silviculture, and range management to produce a game crop, and how to make it help carry the burden of expense until the primary crop comes into production. Game as a crop should be made to pay the cost of production.

What the migratory game needs more than anything else is a continental system of refuge. No one owner State or country covers the entire situation. In this country the restoration of swamps and the protection of swamp land from spring burning are needed.

The discussion of controversial issues is particularly good. Why endlessly argue about the things that can be tested in the field? And why not try to get

the other fellow's point of view? Most of these questions can be settled by fact finding and experimentation. Probably the most troublesome issue is the one of excess game. There is nothing more harmful, except extermination of species, than continued overstocking, yet control has persistently lagged some ten years behind discovery. This is due to misunderstanding, sentimental objections and to lack of faith in the management. It is necessary for the protectionist to understand that a disseminated herd of game will recover more quickly than an overgrazed range. It is necessary, also, for managers to convince the public that kills can be controlled. The protectionist knows that this cannot be done through open seasons and bag limits. Suppose only a hundred deer should be removed, what matters if the season is only one day, so long as the State issues a thousand permits?

The need for education and research is given considerable space. Management is a highly technical form of applied biology. The leaders, administrators and researchers should have a highly technical professional education. There should be also vocational schools to train field workers and wardens. There will be a big demand for men of this class in private work as well as public. Public organizations should be free enough from politics to insure stability and to justify men in preparing for management as a life work. State universities should provide the technical training and contribute directly to research. It is only through co-ordinated action of all interests that the needed increases in game production can be made.

While the report and discussion is confined to game, it is recognized, and so stated, that the same policy and the same technique apply to all wild life. —P. K.



## SUGGESTIONS FOR DISCUSSION

Since this is our last lesson on wild life, I'm almost afraid to ask questions for fear of steering you away from the important issues. Mr. Rachford has told you that he will consider anything you have to say. This is your last chance. The subject is wide open, more so than it probably ever will be again. Policies are being formulated. Standards will have to be fixed. A new organization will have to be developed and integrated into the old. The new men will have to be trained. How or how many is still an open question. If you want to help do these things this is your opportunity to be heard. I mean this is one of your opportunities. The other is to find out who is to represent your Region at the Grazing Conference and tell it to him. Decisions will be made at that conference that will affect materially your work in the future. Possibly the most important will concern the question of how to promote the social welfare of local communities. How can the game resource be made to contribute to the support of the largest possible number of marginal families?

In contributing your part toward the objective stated by Congress—"a Nation-wide program of wild-life conservation and rehabilitation"—there will be a lot of things to be done, difficulties to be met, and local opposition to be



overcome. What will help? What backing will you need? What help will you need in additions to your staff? You cannot decide that except tentatively until after a number of other things have been decided, but still it is time to be thinking about it. An important part of the job may be in public education. The public will be in sympathy with your objective but not necessarily with your methods, especially until they hear more about it. What are the pivotal points around which your educational material should be centered?

There is one other thing you may want to include: I have said elsewhere that your figures on numbers are fairly accurate and good enough to begin on, and that first efforts should be somewhere else. If you do not agree, now would be a good time to say so. There is being developed a technique for game surveys that is said to be reliable. It seems to me also expensive. Also I think a new law provides for surveys by the Biological Survey.

Since the field season is upon us, I am not going to set a time for discussions to come in. To be of most value they should be published before the Grazing Conference. If you put it off too long you probably will not write anything. But with such heavy field programs before us, I cannot well urge you to write.—P. K.



## DISCUSSIONS OF LESSON 25

Since the field season is once more upon us, discussions have fallen off. I presume we will get very few more until next fall, although the subjects still to be covered offer the greatest opportunity probably since our cost accounting lessons. Changes are in the air; changes that are going to affect jobs. But if you have not time, you have not, and this should not be construed as criticism.

These discussions agree more closely than I had expected, and also they take a point of view that is somewhat a surprise. For one thing, they express the conviction, based on field observation, that while wild life has some recreational value aside from hunting, it is never a predominating or controlling factor. If a region is used for recreation, wild life affords an added attraction, makes it a little more pleasing to visitors who would come anyhow, but is never the real drawing power. Visitors do not visit because of an interest in wild life except when they come to hunt.

The other thing that surprises me is the attitude toward predators. The coyote seems not to have a friend. Yet the evidence seems to indicate that they have saved some ranges from complete destruction from overgrazing, and that a lot of other ranges would be better off if there were more coyotes. Possibly some day we can hold down numbers in remote areas without them, numbers of rodents as well as numbers of game; and, of course, there are places, in fact more places, where game numbers need to be built up instead of held down. The answer seems to be to keep away from general rules and plan each unit on the basis of local conditions.

The emphasis given to the growing scarcity of game birds, such as grouse, indicates that aggressive corrective action should be begun at once.—P. K.



Locally we need to give attention to game birds. Ptarmigan are nearly extinct, grouse and sage hens are not far behind. Other animals are not too plentiful, but I do not think they are in danger of extinction. We ought to have places to rear desirable game birds to near adult size and then transplant them to areas needing restocking. Important also is the elimination of predatory animals and birds.

All wild animals have a recreational value. Seen often and easily at close range and becoming comparatively tame they lose the best part of this value. The hunter with a license to shoot gets the greatest value and the sightseer the least. Personally I wouldn't class any animal as a strictly recreational species, at least not as long as we allow hunting or have enough to hunt. Just seeing a wild animal probably has some value, but I think it is somewhat overstressed. People come to the Forests to rest, enjoy the scenery, the wilderness and stream, and as they say, get back to nature. The opportunity to see wild life is an attraction, but its value is just a small part of all the other things that go to make up a Forest vacation. Perhaps we should prepare a questionnaire to issue to the public using the Forests. If our plans are to cater to the users' desires we ought to know exactly the things we should give the greatest value and the most attention.

To give the public better opportunities to see wild life, the management plan can provide for feed in desired locations by artificial methods and restriction of domestic stock. Salting can be done to attract the large game animals to points frequented by the public. Fur-bearing animals and game birds can be introduced and protected. We seem to be well set on the idea that wild life does have a recreational value if it can be seen. Evidently if not seen there is no value. To increase this recreational value we must first have sufficient numbers so that the chance of seeing are in the vacationists' favor. Then we must provide the feed and the protection in the proper places so that the animals will be there. However, our management plans are going to provide for hunting and trapping, and in doing so will provide for sufficient numbers of animals and birds. As long as hunting is permitted and taken care of, the recreation will be on hand and require little or no attention. People journey to the same localities year after year to hunt. I don't believe very many go to the Forests and Parks just to see the wild life. At least you can't charge them for the chance of seeing, and hunting does produce a revenue, in addition to providing recreation for both the sportsman and recreationist. I think we ought to give most of our time and attention to providing as many animals and birds as possible for hunting. If the time comes when this is no longer practicable then we can attend to the conservation of sufficient numbers for the vacationist to see.

I think non-game birds should be included in wild-life plans. We should give attention towards eliminating the predators on these birds. I don't believe we have to worry about feed for the birds. There should be enough natural feed in the Forest to support almost any number we might have. Mostly they need protection to increase to whatever numbers we want.

I can't see that predators have any recreational value. I do not agree that we must have them to protect us from undesirable increases of species on which they prey. We ought to manage that, and we ought to eliminate the predators—if we can. The coyote has been trapped and chased for a good many years and we still have plenty of them. It is true that a predator produces a bigger thrill when seen than other animals. However, the thrill isn't equal to the game and recreational value of the wild life they destroy.

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J. C. URQUHART

LOLO NATIONAL FOREST

MISSOULA, MONTANA

1. Big-horn sheep have been threatened with extinction in this region on many ranges. No open season over a period of years has had a beneficial effect. Control of their natural enemies, including lions, bobcats, coyotes and eagles, would also help.

2. I can see no harm in classing certain kinds of game as "recreation animals," nor any good, either, since in either case the surplus should be removed. There is no reason why elk or goats should be so regarded in this locality. Moose, on which there is no open season, are increasing steadily. Possibly within a few years some of these should be taken, provided a limited license system or some other means of controlling kill becomes effective.

3. I am convinced that the human interest and aesthetic values of wild life are entitled to much more consideration in game management planning than has been accorded them. The recreational value of our Forests will be in some proportion to our success in providing game for observation and camera hunting as well as that which can be killed. To do this may necessitate closed areas along some roads containing sufficient summer and winter range to enable many animals to remain unmolested throughout the year. Deer and elk that are bombarded with spring fields in the fall will not well serve the average camera enthusiast in summer. The excess resulting from closure would overflow to less thickly populated areas. The lack of mobility so characteristic of deer in the Adirondacks does not apply here generally. The concentration of game about most of our natural licks would indicate that continuous use of salt will materially increase the use of areas adapted to game.

4. What to do about the recreational value of predators is indeed a problem, especially since the pesky coyote, and even the big bad wolf, are now recognized as having aesthetic and recreational value. Since "wolves and coyotes are enemies, and arouse our primitive defense instincts," they have a human-interest value which cannot be accorded the timid deer. Dillinger, Barrow and others of similar ilk have the same value which is not possessed by harmless citizens. We need not worry about exterminating killers of this class. Their cunning, and the fact that the point of diminishing returns in control work will be reached before all are taken, will prevent extinction.

Predators are one of the outstanding sources of loss on many areas. What to do about them should be determined on the basis of relative values for individual areas. It does not seem reasonable to me that the recreational value of



coyotes would be greater than the recreational, economic and commercial value of deer.

The recreational value of predators in this region is believed to be rather insignificant, although they are by no means scarce. The average field-going Forest officer probably sees two or three coyotes during the summer season, and the average dude would see less. Due to their nocturnal habits the small fur bearers are seldom seen by tourists, and their recreational value is also small.

In general, in game management planning, the recreational value of predators should be subordinated to that of game animals having a greater value, the existence of which is materially limited by the predators.

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J. V. LEIGHOU

GUNNISON

GUNNISON, COLORADO

There are a number of species of game animals which are dangerously near extinction. One of these, of course, is the mountain sheep, although a number of other species are not very numerous, particularly among our game birds.

Most animals have a value for recreation. Where the line is drawn between intrinsic value and the recreational value is rather difficult to say. Game, in my estimation, does have a very definite value as a Forest resource. This applies not only to game, but to the so-called fur-bearing animals, and it would appear to me that if we are to start in the management of game, one of the best points of attack would be with the fur-bearing animals. The reason for this is that the fur-bearing animals, particularly the beaver, have a very definite value for watershed protection and the regulation of stream flow. Not only that, but the beaver also, by increasing the water area, materially increases the fish resource. If we had the proper amount of beaver I would feel much better regarding the control of erosion.

The beaver have been responsible for a lot of erosion control in the past, and there is no reason why they cannot be used for that purpose in many localities in the future. I have seen a number of so-called mountain meadows which show evidence of having formerly been beaver dams, and I have also seen numerous beaver dams that have been silted up to such an extent that they have apparently been vacated by the beaver.

This, however, is only one value of the beaver. Its fur value is, of course, great. Added to this, it is not very much inclined to migrate, so that control would be comparatively simple. Beaver, of course, have a number of other foods besides aspen, although, no doubt, the aspen is the preferred winter diet.

By attaching the management plan with the beaver, we would not only be able to secure considerable actual value, but would secure a certain amount of watershed protection, regulation of stream flow, and, last but not least, recreational value by increasing the fishing water and the possibility of observing beaver at work, since, if not molested, they become quite tame, and have a very strong recreational appeal.



Recreational value should, of course, be recognized by providing a more abundant supply of game animals where they can be readily observed, the same as we provide for a modified system of cutting of timber along roadsides.

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DONALD E. CLARK

ARAPAHO

HOT SPRINGS, COLORADO

1. My knowledge of wild life is too limited to permit me to hazard a guess as to the danger of extinction of any certain species. However, in this State there are certain species which formerly abounded in number but which have been materially reduced, apparently through hunting. Yet today, after complete or partial protection from legalized hunting, they remain few in number, and apparently are either decreasing in number in some localities or in others are at a standstill. Mountain sheep and grouse are examples. One may readily secure opinions on such situations, but they are, after all, seldom based upon actual knowledge. Until such knowledge is secured through intensive and intelligent study, it is illogical to attempt to arrive at any logical course of action. This concept applies to local situations, as well as State and National. The one or several main, limiting factors must first be determined. Leopold classifies the factors of productivity as follows:

**Decimating Factors**

Hunting  
Predators  
Starvation  
Disease and Parasites  
Accidents

**Welfare Factors**

Food Supply  
Water Supply  
Coverts  
Special Factors

Leopold states that the limiting factor may be different under various environments, and that the weights of other factors need only be considered in their importance relative to the limiting factor or factors. The most apparent need in such cases is a well-directed study. Local forest administrators are probably in the best position to conduct such studies, but the direction of such studies may be best formulated by a wild-life specialist. Is there not a need for one or more of such specialists in each Region for competent direction and correlation in all wild-life matters?

3. The human-interest value of wild life in any locality is primarily dependent first upon other recreational values. Recreational visitors are usually interested primarily in such values as fishing, scenery, and camp or resort accommodations. Few are influenced primarily by their desire to see wild life in its natural habitat. Accordingly, a small amount of wild life in an area having other recreational values may have a much greater human-interest value than large herds in a region where such other recreational values are lacking. Wild life alone does not have the drawing power, and for that reason the human-interest value of some of our large herds of game may not have much bearing upon their management. In a game management plan in an area of recreational importance the human-interest value may properly be of greater concern than hunting values. This is a case of where "the situation gives the order."

5. It is difficult for me to conceive of the propriety of protection of predators under sound game and grazing management because of their recreational values. If they are to be protected on the basis of their recreational value, this can be best accomplished in true game sanctuaries, such as the National Parks and certain State Parks. Even in such sanctuaries they should be controlled in the interest of the welfare of other forms of wild life.

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G. E. MITCHELL

SISKIYOU

GRANTS PASS, OREGON

1. Excluding game animals, there are none that I know of that are dangerously near extinction. Of course, civilization changes rations and balances. One class of animals will increase while another decreases. The marten are seemingly getting less and less, but this is only hearsay from trappers, one of our antiquated methods of determination. But there is precious little we know about marten. My only suggestions for control would be to contact the trappers and get what information is available, assemble this information, and plan accordingly. Our plans may not be right, but they can be changed as facts warrant. Beaver can be re-established in many Western States.

2-3. All animals have a recreation value—some more, some less. A rattlesnake has recreation value, but I would not advocate protecting them, if for no other reason than it is one thing most people are agreed upon a plan of management—they should be killed. Squirrels, birds, all kinds of wild life have a recreation value. A park, a woods, or the out-of-doors would be a dreary place, indeed, if there were no wild life. But animals might have a recreation value at one place and not at another. Each forest watershed, park, lake, highway or stream will have its value in animals as well as scenery.

I agree with P. K. on elk. It would be nice if we could have them back on the ranges, but they are about as impossible as trying to re-establish the buffalo. There is too much competition between them and domestic stock, and too many farmers in most places.

Mountain goats don't have much recreational value because they live where few people see them. The closed season about takes care of them. They do not increase to uncontrollable numbers, and have a valuable attraction in places where found. On Lake Chelan the boat company ran Sunday excursions in winter to see the game. The snow drives the deer and goats down to the water's edge, and the boats go quite near them. One season I checked up and the excursions brought in about \$8,000 to the company and community. It would seem that the management plan should take this value into consideration. Chipmunks at the Oregon Caves eat from six hundred to eight hundred pounds of peanuts each year. Next to the Caves, they are the most-talked-about attraction. They have a recreation value worth considering. Where these animals fit in with the recreational values they should be given consideration. But just because chipmunks are of value at the Oregon Caves is no reason why they should be protected and encouraged in some places where they are a pest. Sea lions have a high recreational value at the old Cliff House at San Francisco and at the Sea Lion Caves on the Oregon Coast. At the latter place a trail was built



to make the caves accessible. The apparent value is 25 cents per person.

All animals have recreational value, if it can be made available. It is a matter of economics whether they are made available. Many tourists and residents will drive miles out of their way if assured they can see wild animals. Usually the less common the animal the greater the interest.

4. I would say non-game birds should be included in management plans, with limitations. Highly colored, sweet-voiced and traditional birds are most valuable. But a limit must be put somewhere, and without more experience behind us it would be difficult to say just where, now. I am not much in sympathy with the protection of hawks, eagles, and owls. I can't see but all are predatory, and so far as the good they do catching varmin, the Biological Survey will do more effective work in a week than the birds will do all summer. But in addition, the birds will kill at least half of the game-bird crop. I may be wrong, but the above is based entirely on my observations.

5. Recreational and commercial values should be weighed against the losses caused by predators when formulating plans. Bobcats that live on rabbits and squirrels need not be given the same consideration as those living on domestic stock and fowl. One has to be pretty careful in such decisions. Most animals classed as predators cause far more damage than they do good. Some are on the border line between predators and game. One season on the Wenatchee Forest bear were responsible for the loss of 1,200 sheep. Sheep were worth on an average of \$10 per head. I don't believe the bear were worth, for sport or recreation, 25 per cent of the value of the sheep. On the other hand, in a National Park the values are reversed. Each situation requires individual planning. But the big thing is to make the plan.





